UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,873	06/28/2006	Yuji Hiroshige	59584US004	1755

32692 7590 02/13/2008
3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER	
REDDY, KARUNA P	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
02/13/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com
LegalDocketing@mmm.com

Office Action Summary	Application No.	Applicant(s)	
	10/596,873	HIROSHIGE ET AL.	
	Examiner	Art Unit	
	KARUNA P. REDDY	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *4-6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 7-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/6/2007, 2/1/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment filed on 11/27/2007. Claim 1 is amended, claims 4-6 are withdrawn. Claims 1-8 are currently pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Applicant's election of group I, drawn to claims 1-3 and 7-8, in the reply filed on 11/27/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 4-6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected groups II,III and IV, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/27/2007.

Claim Rejections - 35 USC § 102/103

4. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamazaki et al (JP 2000-313785).

Yamazaki et al disclose a resin composition for fire-resistant molding materials suitably used as a sheet (paragraph 0001). The flame retardant molding material comprises a radically polymerizable resin containing aluminum hydroxide and phosphoric ester methacrylate (paragraph 0007). Other compounds that are copolymerizable with phosphoric ester methacrylate can be included (paragraph 0023). Examples of copolymerizable monomers include styrene, methyl (meth)acrylate, ethyl (meth)acrylate (paragraph 0025). The phosphoric ester (meth)acrylate is present in 5-80% by weight of the resin and it is desirable that the other copolymerizable monomer is present in an amount of 20-95% by weight. It is desirable to use 100-300 parts by weight of aluminum hydroxide to 100 parts of the resin (paragraph 0028) and reads on the vol% of metal hydroxide of claim 1. Furthermore, when the aluminum hydroxide content is more than 300 parts by weight relative to 100 parts by weight of radically polymerizable resin, molding performance properties such as flexibility may be poor i.e., Yamazaki et al recognize the importance of flexibility accorded to molded products (paragraph 0028). The fire retardant molding composition of the present invention is suitable for materials for moldings requiring good fire resistance such as sheets (paragraph 0034).

Yamazaki et al are silent with respect to its use as a thermally conductive flexible sheet and the high flame/fire-retardancy associated with it.

However, in light of the fact that prior art teaches / discloses essentially the same composition as that of the claimed and is useful for molding into a fire retardant sheet which is flexible, one of ordinary skill in the art would have a reasonable basis to believe that the flame retardant sheet formed using the composition of prior art exhibits essentially the same properties i.e. would be conduct thermally. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if properties of the flexible flame retardant sheet of instant claims and examples of Yamazaki et al are not the same, it would still have been obvious to one of ordinary skill in the art to make flame retardant sheet having the claimed properties because it appears that the references generically embrace the claimed flame retardant sheet and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed flexible flame retardant sheet and the flame retardant sheet of prior art give rise to unexpected results.

Response to Arguments

5. Applicant's arguments filed 11/27/2007 have been fully considered but they are not persuasive. Specifically, applicant argues that (A) office has not established that Yamazaki's composition includes the hydrated metal compound in an amount of 40-90 vol%; (B) office has not met the burden of establishing that Yamazaki et al discloses a flexible thermally conductive sheet; (C) composition of Yamazaki et al is not suitable for thermally conductive sheets which require sufficient flexibility; and (D) office has only established that Yamazaki et al discloses that the ester (meth)acrylate phosphate is radically polymerized to form the radically polymerizable resin, that is combined with aluminum hydroxide to form the flame retardant resin composition.

With respect to (A), it is well known that density = mass/volume. The density of aluminum hydroxide is about 2.4 g/cm^3 i.e. weight part of 100 to 300 translates to a volume of 40 to 120. Given that the range for wt% of monomers that form 100 parts by weight of polymeric resin is large, the volume percent of aluminum hydroxide in the total composition of Yamazaki et al is certainly within the range of present claims. Since the PTO cannot conduct experiments, burden is shifted to the applicant to show otherwise.

With respect to (B), since the composition of Yamazaki et al is substantially similar to that of present claims and can be molded into a flexible sheet, burden is on the applicant to prove that prior art product does not possess characteristics of the claimed product. See MPEP § 2112 (R-3)-V.

With respect to (C), Yamazaki et al in fact teach that the molded resin compositions are suitable for moldings, requiring good fire resistance, such as sheets (paragraph 0034). In addition, Yamazaki et al recognizes the importance of flexibility by requiring that the amount of aluminum hydroxide be less than 300 parts by weight (paragraph 0028).

With respect to (D), it is noted that the present claims are directed to a thermally conductive fire-retardant flexible sheet comprising (A) a (meth)acrylic polymer, (B) an organophosphorus compound, and (C) a hydrated metal compound. Also, the organophosphorus compound is generic to both polymerizable and non-polymerizable organophosphorus compounds, and in present dependent claim 7, the compound is a polymerizable organophosphorus compound. It is the examiner's position that when composition of the present claims, comprising a polymerizable organophosphorus compound which is copolymerizable with the methacrylic monomer, is molded into a sheet, the fire-retardant flexible sheet would read on the molded sheet of Yamazaki et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy
Examiner
Art Unit 1796

/Karuna P Reddy/
Examiner, Art Unit 1796

/VASUDEVAN S. JAGANNATHAN/
Supervisory Patent Examiner, Art Unit 1796